

Formal Drawings

Formal drawings for this application were submitted on March 5, 2002. It is believed that they are in condition for acceptance.

Summary

Aspects of the claimed invention can be best understood with reference to a preferred embodiment. In this illustrative embodiment, a user's browser program first requests a media redirection file (MRF) from an origin Web server. The Web server then attempts to return the MRF file to the user's browser program. The MRF file can contain instructions for telling the browser where to locate the streaming media content file and what type of player program will be needed to view it. However, as the MRF file is sent from the media server, a cache redirector intercepts the MRF file before it is actually received at the browser. The cache redirector examines the MRF file to determine if the requested multimedia content file is available in the local media cache. If so, then the designation in the MRF file can be changed by the cache redirector to indicate a local media cache as the location of the requested media content. On a local cache miss operation, a request for the media file is launched to the indicated media server as specified by the original MRF file. In either event, the browser then opens the media player and the media player obtains the stream of data from a server generating, for example, a data flow.

In the aforementioned arrangement, the cache redirector can maintain, or at least have access to, information concerning the contents of the local media cache. In particular, the cache redirector at a minimum can be afforded access to information as to what is contained in the media cache so that it can determine whether or not the media file being requested is already resident in the local media cache. The cache redirector can manage the media cache, telling it what content files to store and delete.

The cache redirector can be a small network server (appliance) whose function is media file redirection. The cache redirector watches packet traffic arriving at the point of presence, rewrites MRF files as needed, and keeps track of what is contained in the media cache. However, the cache redirector may also itself contain cache memory for caching other types of content such as text files and the like.



In another embodiment of the invention, the cache redirector does not need to keep track of what is in the media cache itself. In this instance, the cache redirector communicates in some way with the media cache in order to be able to query it as to the media cache. In this scenario, the media cache itself is intelligent about storing streaming media content files.

The advantage of the foregoing arrangement is especially realized in environments where high speed modem equipment, such as Digital Subscriber Line (xDSL) or cable modem equipment, is deployed between the point of presence and the end users. While such equipment can run at speeds of 500 kilobits per second or more, the Internet itself can sometimes only provide 40 kilobits per second or even less per user connection. Thus, by placing the media cache with the media file redirection protocol at the edge of the network closest to the user, such as at a point of presence, streaming media files can be presented to users at the highest available data rates provided by their high speed interface equipment, without having to tolerate delays through the Internet.

Many types of specialized content files such as banner ads, streaming video clips, and the like can benefit from the deployment of a cache redirector and local cache server.

Cited References

Yates, *et al.*, (U.S. Patent 6,167,438) discloses a method of intercepting request messages from a client server for servicing a request other than at an originally intended network node.

Rejection of Claims 1-10 and 12-13 under 35 U.S.C. § 102

The Examiner has rejected claims 1-10 and 12-13 under 35 U.S.C. § 102(e) based on the teachings of Yates, *et al.*, (U.S. Patent 6,167,438).

It is well accepted that a claim is not anticipated under 35 U.S.C. § 102 unless each and every aspect of the claimed invention is taught by a single reference. The Examiner has the burden of showing that a claimed invention is anticipated by pointing out particular references to cited prior art. It is respectfully submitted that the invention as recited in amended claim 1 is not anticipated because it includes distinguishing limitations not taught or suggested by any of the cited references. In fact, even the combination of cited reference does not teach every limitation

of the claimed invention. The claimed invention is therefore also non-obvious in light of the cited references.

Claim 1 specifically recites that a client requests delivery of media content such as streaming data by requesting a media redirection file (MRF) from an origin server. Prior to delivery of the media redirection file from the origin server, the media redirection file is intercepted at a node between the origin server and client. After being intercepted, the media redirection file is modified to include, for example, new instructions so that streaming data is received from a local media cache server instead of an originally intended media server as intended by the origin node. This technique as recited in claim 1 is fundamentally different than that cited in the Yates reference.

For example, Yates '438 is directed towards offloading network message processing from an origin server. Typically, a content request message is generated at a client terminal and transmitted over a network to the origin server. The content request message transmitted from the client is intercepted at an intermediate node in the network prior to reaching the origin server. That is, the request message is intercepted as it is sent from the client to the server. Processing of the request message at the intermediate node causes the request to be redirected to an alternative server that will service the request instead of the originally intended origin server to which the message was directed. In this way, an alternative server or processing device can service requests that are otherwise serviced by the origin server. Traffic on the network can be reduced since servicing of the client request is at an intermediate node closer to the client requesting the content.

In contradistinction, the claimed invention is directed towards intercepting a response message from an origin server at a node of a network so that the response (as originally sent by the origin server) does not reach the client. The response is the MRF file generated by the origin server. As recited in claim 1, the response can include instructions that are rewritten at the intercepting node. Processing at an intercepting node of the network can include rewriting the instructions in the MRF file so that the media content file is served by a different node than originally intended by the origin node. In other words, the origin node can send the requesting client instructions how to receive the requested data. The intermediate node modifies the instructions in the MRF file and forwards the modified response (MRF file) to the requesting

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client so that the client receives data such as streaming media content from an alternate source than a node as originally intended by the origin server. This technique enables offloading of network traffic such as streaming data to an alternate source that can otherwise handle the network traffic. It is respectfully submitted that these aspect of the claimed invention are neither taught nor suggested by Yates or any of the cited references.

Yates discloses a technique of redirecting client request messages. However, as discussed above, Yates does not teach or suggest intercepting an MRF file from an origin server nor does it teach or suggest modifying instructions therein. In fact, Yates does not even teach the use of a media redirection file. Thus, it can not possibly teach every aspect of the claimed invention as cited by the Examiner.

The Examiner originally argued that the claimed invention as recited in claim 1 was anticipated based on passages in Yates (column 1, lines 23-49), (column 3, lines 23-65) and (column 5, lines 12-25). It is respectfully submitted that these passages do not describe or provide blueprints of the invention as recited by claim 1.

For example, the first passage (column 1, lines 23-49) is located in the background section of the Yates patent. This passage discusses fundamental principles of a client server network. It is submitted that this passage does not anticipate the claimed invention.

The second passage (column 3, lines 23-49) of Yates, as addressed above, discloses a technique for offloading network message processing from an origin or home server. The origin or home server is the server that a client initially sends a message to receive corresponding requested content such as a document over the network. The Yates reference at column 3, lines 29-35 specifically recites that:

“...cache servers are placed throughout the network, such that if the document request can be fulfilled at some intermediate node along the routing graph [sic], it will be serviced by the intermediate node returning the cached document to the client. The document request messages are thus responded to before they ever reach the home server.”



Thus, according to this passage, the intermediate node of the '438 patent intercepts a client request message before it reaches a home or origin server.

Merely stating that a network request message can be intercepted at an intermediate node does not amount to teaching that a reply message such as an MRF file can be intercepted from an origin server. The MRF file or response is not itself a client request message. One message is a query. The other message is a reply to a query. This passage cited by the Examiner therefore neither teaches nor suggests the claimed invention of intercepting a response from a home server.

In Yates, the client request message does not reach the home or origin server because it is intercepted and redirected. In contradistinction and according to the claimed invention, a client request message is allowed to reach the home server, which responds by sending an MRF file. Instructions in the reply message or MRF file are then modified so that the client will receive the data information from a source not originally intended by the origin server.

The third cited passage (column 5, lines 12-25) in Yates discloses that certain documents stored in the cache server at an intermediate node of a network can include dynamically generated content documents. For example, this passage discloses that a process of generating a web page from the local cache server in response to intercepting a request message can include fetching and executing programs to produce the web page for a requesting client terminal. This aspect of Yates also does not teach intercepting a reply message intended for a requesting client nor does it teach modification of an instructions prior to sending them to a requesting client as in the claimed invention. Thus, this passage in conjunction with the other cited language in Yates can not anticipate the claimed invention or render it obvious.

In the latest office action mailed May 14, 2002, the Examiner has recited additional broad ranges of text to reject the claimed invention without specifically pointing to text that would anticipate the claimed invention. The Examiner has the burden of pointing to specific text and provide explained reasoning that supports a rejection and not make broad conclusory statements about same.

Even the broadest interpretation of the cited passages does not teach the elements of the claimed invention. For example, none of the cited passages teach or suggest intercepting a reply message intended for a requesting client or modification of an instruction set as discussed. Additionally, Yates does not teach sending a modified instruction set to the client. Thus, the



Yates reference does not teach all of the claim elements to reject the claimed invention under 35 U.S.C. § 102. Withdrawal of the rejection and allowance of the claim is respectfully requested.


Advantages of the Claimed Invention not Taught by the Prior Art

An advantage of the invention as recited in claim 1 is the ability to offload servicing a client to another media server than originally intended by the home or origin server to which the request message was originally sent. For instance, in response to receiving a client request, the origin server can generate an MRF file that is forwarded to the requesting client. According to the present invention, the MRF file can be modified before being passed on to the requesting client. Consequently, the modified MRF file can direct the requesting user to a different server than the one identified by the origin server generating and transmitting the MRF file. A redirector device disposed to intercept the reply message can therefore cause the client to more efficiently receive media content than if it executed instructions of the original MRF file.

This technique is also advantageous because redirecting the client to receive data information from an alternative node is transparent to the client. For example, the file generated by the origin node can be intercepted and modified without the client even knowing that the file was intercepted and that instructions were rewritten. Thus, there is no extra processing effort required by the client than would otherwise be necessary to receive media content. The client may have to receive the media content from another server than the server generating the MRF file anyway. Consequently, both the client and other users benefit from this technique. First, the client can retrieve the media at a more accessible node reducing the time necessary to receive the content media. Additionally, other users of the network can benefit from reduced network traffic congestion since the data is retrieved from a more easily accessible node such as a local media cache server located nearer the client.

None of these advantages are taught or suggested by the cited references. Therefore, it is respectfully submitted that the references do not anticipate or suggest the claimed invention.

It is submitted in view of the above amendment and remarks that claim 1 is novel and non-obvious as it incorporates advantageous techniques contrary to previously accepted wisdom and blueprints of the inventive apparatus can not be found in the individual or combined cited references. Accordingly, it is submitted that independent claim 1 is in condition for allowance



over the prior art. Further examination and reconsideration of the rejection of claim 1 and corresponding dependent claims 2-10 and 12-13 is respectfully requested.

Patentability of New Claims 14-35

Claim 14 recites distinguishing features similar to those discussed above for claim 1. For applicable reasons, it is submitted that claim 14 is allowable as well as corresponding dependent claims 15-35. Consideration and allowance of these claims is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned Attorney at (978) 341-0036.

Respectfully submitted,

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